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Prof I. Ya. Bashilov

As a result of the work of the expedition it was established that the content of barium oxide in the ore is not so great, and consequently the processing of the ores was made more difficult. Besides this, during the current year a considerable amount of rich ore material was discovered in this bed with a content of uranous and uranic oxide up to 1.5%, and in some individual tests even higher. Both of these circumstances fully indicate the industrial significance of the bed and increase the possibility of organizing an experimental plant on its base for the extraction of radium.

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Review of Evidence

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Up to this time the Taboshar had had been unprofitable for industrial development because of the low-average content of radium and uranium. Also, the possible existence in the ore of barium oxide and soluble sulphuric salts could complicate the processing. But the undoubtedly large total supplies of radium and uranium have necessitated more attentive study of the bed itself and methods of processing the ore. As a result of extensive work, original and new means of processing the ore of this bed have been found, and extensive prospecting has determined all of its features. The Taboshar bed is becoming an important industrial objective, and the beginning of exploitation is set by Glavredmet for 1955.

The second expedition had the task of examining the possibility of extracting radium from radium-bearing bearing waters under production conditions. These waters, discharged together with oil from wells, are a completely new type of raw material for obtaining radium. This was first established by Soviet research in the last 6-8 years. The waters on Cheleken Island are distinguished by a high temperature (up to 60°), with a large content of soluble salts, and contain on the average from 0.3 to 0.5 mg of radium for every 1,000 cubic meters. Lengthy laboratory work preceding the expedition was the basis for planning a series of possible methods for extracting radium from such waters. As a result of the work of the expedition, the difficult problem of extracting a small amount of radium from an enormous mass of water was solved. A very simple and applicable method was set up for this, and the necessary data was found for organizing a continuously operating station.

The expedition worked in two directions. It sought, first, methods of extracting radium from the water in the form of certain concentrations, and secondly, the means of separating these concentrations from the mass of the water. The latter was especially difficult, as it had to be done very cheaply and very cheaply so that the cost of the radium would not exceed the existing price.

Iodine is already being extracted from these waters, and the extraction of radium is possible. In conducting this work Glavredmet was helped by the administration of Vakhnifarm, and in particular by the administration of the Cheleken iodine plant in its field.

The success of both expeditions, apart from their great theoretical interest, permits a great increase in radium supplied in research laboratories and medical establishments of the Soviet Union and a wider use of this exceptionally rare and expensive metal.

Both expeditions carried out their work with the constant and effective support of local party and Soviet organizations of the Tadzhik SSR and the Turkmen SSR. This determined the final success of their work to a considerable extent.

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